

No.



201200080

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Monsanto Technology LLC

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

An application requesting a certificate of protection for an alleged distinct variety of sexually reproduced, or tuber propagated plant, the name and description of which are contained in the application and exhibits, a copy of which is hereunto annexed and made a part hereof, and the various requirements of LAW in such cases made and provided have been complied with, and the title thereto is, from the records of the PLANT VARIETY PROTECTION OFFICE, in the applicant(s) indicated in the said copy, and Whereas, upon due examination made, the said applicant(s) is (are) adjudged to be entitled to a certificate of plant variety protection under the LAW.

Now, therefore, this certificate of plant variety protection is to grant unto the said applicant(s) and the successors, heirs or assigns of the said applicant(s) for the term of TWENTY years from the date of this grant, subject to the payment of the required fees and periodic replenishment of viable basic seed of the variety in a public repository as provided by LAW, the right to exclude others from selling the variety, or offering it for sale, or reproducing it, or importing it, or exporting it, or conditioning it for propagation, or stocking it for any of the above purposes, or using it in producing a hybrid or different variety therefrom, to the extent provided by the PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)



CORN, FIELD

'CV084705'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this eleventh day of March, in the year two thousand and fourteen.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE <i>(Instructions and information collection burden statement on reverse)</i>		The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995. Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).	
1. NAME OF OWNER Monsanto Technology LLC		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 8350 Minnegan Road Waterman, IL 60556 USA		3. VARIETY NAME CV084705	
5. TELEPHONE (include area code) 815-758-9281		FOR OFFICIAL USE ONLY PVPO NUMBER 201200080 FILING DATE Dec 19, 2011	
6. FAX (include area code) 815-758-3117			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) Corporation	8. IF INCORPORATED, GIVE STATE OF INCORPORATION Delaware	9. DATE OF INCORPORATION March 2, 2000	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Timothy R. Kain 8350 Minnegan Road, Waterman, IL 60556 Chunping Li 800 North Lindbergh Blvd., St. Louis, MO 63167		FILING AND EXAMINATION FEES: \$ 4382.00 DATE 12/19/11 CERTIFICATION FEE: \$ DATE	
11. TELEPHONE (Include area code) 815-758-9281	12. FAX (Include area code) 815-758-3117	13. E-MAIL trkain@monsanto.com	
14. CROP KIND (Common Name) Field Corn	16. FAMILY NAME (Botanical) Gamineae Gramineae	18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input type="checkbox"/> NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.	
15. GENUS AND SPECIES NAME OF CROP Zea mays	17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act) <input checked="" type="radio"/> YES (If "yes", answer items 21 and 22 below) <input type="radio"/> NO (If "no", go to item 23) <input type="radio"/> UNDECIDED	
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Exhibit F. Declaration Regarding Deposit g. <input checked="" type="checkbox"/> Voucher Sample (3,000 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) h. <input checked="" type="checkbox"/> Filing and Examination Fee (\$4,382), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)		21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED	
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)		22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)	
25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.		24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	
SIGNATURE OF OWNER 		SIGNATURE OF OWNER	
NAME (Please print or type) Timothy R. Kain		NAME (Please print or type)	
CAPACITY OR TITLE Patent Scientist	DATE 14 DEC 2011	CAPACITY OR TITLE	DATE

GENERAL INSTRUCTIONS: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E, F; (3) for a tuber reproduced variety, verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; and (4) payment by credit card or check drawn on a U.S. bank for \$4,382 (\$518 filing fee and \$3,864 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the *Regulations and Rules of Practice*). **NEW:** With the application for a seed reproduced variety or by direct deposit soon after filing, the applicant must provide at least 3,000 viable untreated seeds of the variety *per se*, and for a hybrid variety at least 3,000 untreated seeds of each line necessary to **reproduce** the variety. Partial applications will be held in the PVPO for not more than 90 days; then returned to the applicant as un-filed. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Ballimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initiated and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a payment by credit card or check payable to "Treasurer of the United States" in the amount of \$768 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the *Regulations and Rules of Practice*.)

Plant Variety Protection Office
Telephone: (301) 504-5518 **FAX:** (301) 504-5291
General E-mail: PVPOmail@usda.gov
Homepage: <http://www.ams.usda.gov/science/pvpo/PVPIndex.htm>

SPECIFIC INSTRUCTIONS:

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and **provide evidence** that the permanent name of the application variety (even if it is a parental, inbred line) has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: U.S. Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Programs, **Seed Regulatory and Testing Branch**, 801 Summit Crossing Place, Suite C, Gastonia, North Carolina 28054-2193 Telephone: (704) 810-8870, <http://www.ams.usda.gov/lsg/seed.htm>.

ITEM

- 19a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
 (2) the details of subsequent stages of selection and multiplication;
 (3) evidence of uniformity and stability; and
 (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
 (1) identify these varieties and state all differences objectively;
 (2) attach replicated statistical data for characters expressed numerically and demonstrate that these are clear differences; and
 (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See *Regulations and Rules of Practice*, Section 97.103).
23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

22. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

23. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

Corn inbred parent line of hybrid sold in the U.S. - April 1, 2011

24. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

U.S. Patent Application filed on May 3, 2011 - Application serial number: 13/099,722 (CV084705)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

EXHIBIT AOrigin and Breeding History

CV084705

CV084705 was selected for its short plant stature, improved grain quality, stalk and root strength, yield potential, and overall improved general combining ability.

Summer 2001	The inbred line I180421 (a proprietary Monsanto Corporation inbred) was crossed to the inbred line I900420 (a proprietary Monsanto Corporation inbred) in the Elite 2 Owatonna, MN Summer Nursery. I900420 was used as the female and grown in plot 120143. I180421 was used as the male and grown in plot 120152.
Winter 2001-02	The S0 seed was grown and self-pollinated in a Short Selfing Nursery in Isabella, PR; row 000041.
Winter 2002-03	The S1 seed was grown in Inv17 Set 03F2B and self-pollinated in Maui, HI; Field 2K15CJ4; Range 17:Columns 8-25. 306 ears were selected.
Summer 2004	S2 ear 0001 was grown ear-to-row and self-pollinated in Owatonna, MN; Summer Nursery Field X-01; Set SC1-Self-B; plot 533004. Four S3 ears were selected.
Summer 2005	Four S3 ears were grown ear-to-row and self-pollinated in the Stanton, MN; Summer Nursery X-02; Set SC2-A; Plots 532668 - 532671. S3 ear selection 0002 grown in plot 532669 was selected and designated as coded inbred CV084705. Three S4 ears from plot 532669 were selected to initiate Breeder Seed development. The remaining S4 ears from plot 532669 were bulked.
Winter 2005-06	The three S4 ears selected in Summer 2005 were grown ear-to-row and self-pollinated in Rancagua, Chile; Nursery Field S2C; Set B-R46-LS-17; Plots 36315016 - 36315018. Five S5 ears were selected from each plot for advancement and the remaining ears within each plot were bulked. S4 ear selections 0001, 0002, and 0003 grown in plots 36315016, 36315017, and 36315018 were designated as finished inbred CV084705.
Summer 2006	The 15 S5 ears selected in Winter 2005-06 were grown ear-to-row and self-pollinated in the Stanton, MN; Summer Nursery Field 06BGN05; Set BGNPCM1-17. S5 ear selections 0006, 0007, and 0008 derived from S4 ear selection 0001 were selected for Breeder Seed advancement. Final selection was completed by selecting ten S6 ears derived from S5 ear 0006 (grown in plot 251) and ten S6 ears derived from S5 ear 0008 (grown in plot 253). These ears will be used as a clean source for any re-starts, etc. The remaining ears within each plot were bulked.

Statement of Stability and Uniformity

Corn inbred CV084705 was coded in 2005 with final selection made in 2006. This inbred has been reproduced by self pollination for two generations and judged to be stable. Inbred CV084705 is uniform for all traits observed.

Statement of Variants

CV084705 shows no variants other than what would normally be expected due to environment or that would occur for almost any character during the course of repeated sexual reproduction.

EXHIBIT BStatement of Distinctness

Monsanto Technology LLC believes that Corn Variety CV084705 is most similar to Corn Variety 01INL1, (PVP No. 9900238) a proprietary Monsanto Technology LLC corn variety.

Corn Variety CV084705 differs from Corn Variety 01INL1 at the following traits:

Trait	CV084705	01INL1
Anther Color	Purple	Yellow

2008

Variety	Tassel Length (cm)	Tassel Branch No.
CV084705	37.5 (Std Dev = 2.8, N= 15)	3.2 (Std Dev = 0.6, N= 15)
01INL1	30.7 (Std Dev = 2.6, N= 15)	10.8 (Std Dev = 1.1, N= 15)
P_Val	0.000	0.000
Signif.	**	**

Significance levels are indicated as: + = 10%, * = 5 %, ** = 1%

2009

Variety	Tassel Length (cm)	Tassel Branch No.
CV084705	36.6 (Std Dev = 3.1, N= 15)	2.9 (Std Dev = 0.4, N= 15)
01INL1	31.8 (Std Dev = 2.8, N= 15)	9.5 (Std Dev = 0.9, N= 15)
P_Val	0.000	0.000
Signif.	**	**

Significance levels are indicated as: + = 10%, * = 5 %, ** = 1%

Corn variety CV084705 has purple anther color, a longer tassel length and fewer number of tassel branches, while comparative corn variety 01INL1 has yellow anther color, shorter tassel length and greater number of tassel branches.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 3.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

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**U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705**

Exhibit C

**OBJECTIVE DESCRIPTION OF VARIETY
Corn (*Zea mays* L.)**

NAME OF APPLICANT (S) Monsanto Technology LLC	TEMPORARY OR EXPERIMENTAL DESIGNATION	VARIETY NAME CV084705
ADDRESS (Street and No. or RD No., City, State, Zip Code, and Country) 8350 Minnegan Road Waterman, IL 60556 USA		FOR OFFICIAL USE ONLY PVPO NUMBER 201200080

In the spaces on the left, enter the appropriate numbers that describe the characteristics of the application variety. On the right, enter the appropriate numbers that describe the characteristics of the most similar comparison variety. Right justify whole numbers by adding leading zeros if necessary. The variety that you choose for comparison should be the most similar one in terms of overall morphology, background, genetics, and maturity.

In general, for this form, measurements of quantitative traits should be taken in **one trial on 15-25 randomly selected plants** to obtain averages and statistics that describe a typical field of the variety. Trials should be done preferably in one location, with replicates, in the region of best adaptability (where the variety will grow and perform to its best potential). Trials should include the application variety plus all comparison varieties.

At least one year of trials should be conducted within the United States of America. (Form technical content last updated Dec. 2008.)

The following historical STANDARD INBRED LINES are available from the North Central Regional Plant Introduction Station in Ames, Iowa. They have been well characterized and may be used as comparison varieties. If used, then use the most similar (in background and maturity) of these to make comparisons based on grow-out trial data.

Yellow Dent Families:

Family	Members
B14	CM105, A632, B64, B68
B37	B37, B76, H84
B73	N192, A679, B73, NC268
C103	Mo17, Va102, Va35, A682
Oh43	A619, MS71, H99, Va26
WF9	W64A, A554, A654, Pa91

Yellow Dent (Unrelated):

Co109, ND246
Oh7, T232
W117, W153R
W182BN

White Dent:

CI66, H105, Ky228

Sweet Corn:

C13, Iowa5125, P39, 2132

Popcorn:

SG1533, 4722, HP301, HP7211

Pipcorn:

Mo15W, Mo16W, Mo24W

Describe the Region of Best Adaptability, trial set-up, and the environmental conditions (including monthly temperatures and rainfall) during the trial (continue in Comment Section).

Description of Trial set-up and environmental conditions provided in Exhibit D.

1. TYPE: 5 1 = Flint 2 = Flint-like 3 = Intermediate 4 = Dent-like 5 = Dent	Comparison Variety Name: <u>01INL1</u> <u>5</u> Type
2. MATURITY (In Region Best Adaptability: show Heat Unit Formula in Comments section): DAYS HEAT UNITS 0 8 0 1 3 2 4.0 From planting to 50% of plants in silk 0 8 2 1 3 2 4.0 From planting to 50% of plants in pollen	DAYS HEAT UNITS 0 8 4 1 3 4 7.0 50% Silk 0 7 9 1 2 4 4.0 50% Pollen
Application Variety Data	Comparison Variety Data

Application Variety Data				Comparison Variety Data			
3. PLANT:				Mean			
		Standard Deviation	Sample Size		Standard Deviation	Sample Size	
212.3	cm Plant Height (to tassel tip)	6.0	15	194.1	cm Plant Height	2.5	15
71.8	cm Ear Height (to base of top ear node)	3.7	15	73.6	cm Ear Height	3.0	15
14.1	cm Length of Top Ear Internode	0.7	15	14.1	cm Internode	0.4	15
3 Anthocyanin of Brace Roots (when brace roots are green with some red or purple anthocyanin in stripes or speckles, rate the shade of anthocyanin) 1 = Absent (Green) 3 = Weak (Pink) 5 = Medium (Light red; Light red/purple) 7 = Strong (Red; Red/purple) 9 = Very Strong (Dark red/purple)				_3_ Brace Root Anthocyanin			
4. LEAF:				Mean			
		Standard Deviation	Sample Size		Standard Deviation	Sample Size	
10.3	cm Width of Ear Node Leaf	0.5	15	7.7	cm Leaf Width	0.4	15
73.8	cm Length of Ear Node Leaf	2.7	15	74.0	cm Leaf Length	2.4	15
1 Leaf Attitude from main stem to tip of leaf (see UPOV diagrams) 1 = Erect 3 = Horizontal 5 = Drooping				_3_ Leaf Attitude			
3 Pubescence on margin/edge of leaf sheath (Rate on scale from 1 = none to 9 = like peach fuzz)				_2_ Pubescence on margin/edge of leaf sheath			
5. TASSEL:				Mean			
		Standard Deviation	Sample Size		Standard Deviation	Sample Size	
3.2	Number of Primary Lateral Branches	0.6	15	11.0	No. Tassel Branches	1.1	15
36.6	cm Tassel Length (From top node below flag leaf to tassel tip)	5.1	15	31.8	cm Tassel Length	2.8	15
10.6	cm Tassel Peduncle Length (From top node below flag leaf to bottom tassel branch)	2.6	15	4.7	cm Peduncle Length	1.3	15
23.4	cm Tassel Central Spike Length (From top tassel branch to tassel tip)	1.7	15	28.3	cm Central Spike Len	1.1	15
1 Branch Attitude from Central Spike from main spike to tip of tassel branch (see UPOV diagrams): 1 = Erect 3 = Horizontal 5 = Drooping				_1_ Tassel Branch Attitude			
9 Anther Color (2-3 days after being exposed to allow for sun reddening effects) 1 = Green or Yellow (ex. Munsell Code 2.5GY 8/6 or 10Y 8.5/6) 3 = Pink (ex. Munsell 2.5R 7/6 or 5R 5/6) 5 = Red (ex. Munsell 2.5R 4/8) 7 = Dark Red (ex. Munsell 10RP 4/8) 9 = Purple (ex. Munsell 5RP 5/8)				_1_ Anther Color			
1 Glume Color (on the top 2/3 of the glume) 1 = Green or Yellow (ex. Munsell Code 2.5GY 8/6 or 10Y 8.5/6) 3 = Pink (ex. Munsell 2.5R 7/6 or 5R 5/6) 5 = Red (ex. Munsell 2.5R 4/8) 7 = Dark Red (ex. Munsell 10RP 4/8) 9 = Purple (ex. Munsell 5RP 5/8)				_1_ Glume Color			
1 Bar Glume Anthocyanin Color (on the bottom 1/3 of glume; see UPOV Diagram; Note: the bar glume is listed as "present" if it is present and the ring is at least 50% closed) 1 = Green or Yellow (ex. Munsell Code 2.5GY 8/6 or 10Y 8.5/6) 3 = Pink (ex. Munsell 2.5R 7/6 or 5R 5/6) 5 = Red (ex. Munsell 2.5R 4/8) 7 = Dark Red (ex. Munsell 10RP 4/8) 9 = Purple (ex. Munsell 5RP 5/8)				_1_ Bar Glume Anthocyanin Color			
Application Variety Data				Comparison Variety Data			

Application Variety Data				Comparison Variety Data			
6a. EAR (Unhusked Data):				Mean			
	Standard Deviation	Sample Size			Standard Deviation	Sample Size	
10.1 cm Husk Extension (at harvest)	1.6	15	5.2 cm Husk Extension	0.3	15		
24.6 cm Husk Leaf Length	1.1	15	18.9 cm Husk Leaf Len	0.6	15		
1 Silk Color (2-3 days after emergence to allow for sun reddening effects) 1= Green or Yellow (ex. Munsell Code 2.5GY 8/6 or 10Y 8.5/6) 3= Pink (ex. Munsell 2.5R 7/6 or 5R 5/6) 5= Red (ex. Munsell 2.5R 4/8) 7= Dark Red (ex. Munsell 10RP 4/8) 9= Purple (ex. Munsell 5RP 5/8)				_1_ Silk Color			
6b. EAR (Husked Ear Data):				Mean			
	Standard Deviation	Sample Size			Standard Deviation	Sample Size	
15.8 cm Ear Length	0.5	15	14.6 cm Ear Length	1.1	15		
38.1 mm Ear Diameter at mid-point	1.4	15	42.1 mm Ear Diameter	1.9	15		
111.4 gm Ear Weight	4.6	15	121.5 gm Ear Wt.	8.5	15		
13.8 Number of Kernel Rows	1.1	15	17.0 No. Kernel Rows	1.0	15		
31.4 Number of Kernels per Row	4.5	15	26.0 No. Kernels per Row	1.9	15		
8.4 cm Shank Length	1.4	15	9.7 cm Shank Length	1.4	15		
7. KERNEL (Dried):				Mean			
	Standard Deviation	Sample Size			Standard Deviation	Sample Size	
9.8 mm Kernel Length	0.8	15	11.5 mm Kernel Length	0.3	15		
7.7 mm Kernel Width	0.7	15	8.7 mm Kernel Width	0.2	15		
2 Hard Endosperm Color 1= White (ex. Munsell Code 5Y 9/1 or 2.5Y 8.5/2) 2= Yellow (ex. Munsell Code 2.5Y 8/10 or 7.5YR 7/14) 3= Other (specify _____)				_2_ Hard Endosperm Color			
1 Endosperm Type: 1 = Normal Starch 3 = Waxy Starch 5 = High Lysine 7 = Other _____				_1_ Endosperm Type			
18.1 gm Weight per 100 Kernels (unsized sample) 2.2 500 seeds				21.8 gm Kernel Wt. 3.4 500 seeds			
8. COB:				Mean			
	Standard Deviation	Sample Size			Standard Deviation	Sample Size	
23.1 mm Cob Diameter at mid-point	1.0	15	21.9 mm Cob Diameter	1.1	15		
3 Cob Color 1= White (ex. Munsell 5Y 9/1 or 2.5Y 8.5/2) 2= Pink (ex. Munsell 2.5R 7/6 or 5R 5/6) 3= Red (ex. Munsell 2.5R 4/8 or 10RP 4/8) 4= Other (describe _____)				_3_ Cob Color			
9. DISEASE RESISTANCE of the variety per se: Name the disease, the causative organism, the races or strains, and the resistance rating (rate from 1 (most susceptible) to 9 (most resistant). Trials should be conducted with resistant and susceptible check varieties, and ensure that adequate disease pressure is present in the trial (such as with inoculations or heavy disease pressure). EXAMPLE: 7 Helminthosporium Leaf Spot (<i>Bipolaris zeicola</i>) Race 2				DISEASE RESISTANCE of the comparison variety per se: Rate the same diseases as tested for the application variety.			
Application Variety Data				Comparison Variety Data			

Application Variety Data	Comparison Variety Data
<p>10. INSECT RESISTANCE of the variety per se: Name the insect, give its scientific name, and the resistance rating (rate from 1 (most susceptible) to 9 (most resistant). Trials should be conducted with resistant and susceptible check varieties, and ensure that adequate insect pressure is present in the trial (such as with inoculations or heavy insect pressure).</p> <p>EXAMPLE: European Corn Borer (<i>Ostrinia nubilalis</i>) <u>7</u> 1st Generation (Typically Whorl Leaf Feeding)</p>	<p>INSECT RESISTANCE of the comparison variety per se: Rate the same insects as tested for the application variety.</p>
<p>11. MOLECULAR MARKERS: (1 = data available but not supplied; 2 = data supplied)</p> <p>___ Isozymes ___ RFLP's ___ RAPD's ___ SSRs ___ SNPs ___ Other (Specify) _____</p>	<p>11. MOLECULAR MARKERS</p> <p>___ Isozymes ___ RFLP's ___ RAPD's ___ SSRs ___ SNPs ___ Other _____</p>
<p>12. AGRONOMIC TRAITS: Please place hybrid performance data in Exhibit D if desire to report it.</p> <p>___ ___ ___ Kg/ha Yield of Variety Per Se (at grain maturity)</p>	<p>12. AGRONOMIC TRAITS</p> <p>___ ___ ___ Kg/ha Yield of Variety Per Se</p>
Application Variety Data	Comparison Variety Data

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- U. S. Department of Agriculture. 1936. 1937. Yearbook.

COMMENTS: (e.g., state how heat units were calculated, report any traits not listed on the form, and/or where data was collected. Continue in Exhibit D.)

$$\text{Unit Calculation: GDU} = \frac{\text{Daily Max Temp } (<=86^{\circ}\text{F}) + \text{Daily Min Temp } (>=50^{\circ}\text{F})}{2} - 50^{\circ}\text{F}$$

EXHIBIT D

The corn varieties CV084705 and 01INL1 were grown at the Waterman, IL observation nursery in years 2008-2009. The varieties were planted in 2 row plots with 15 plants per row in each of the two years. Trait data were collected on 15 random representative plants for most traits from each 2 row plot. Data on qualitative traits are usually collected on 15 plants from each 2 row plot. For Exhibit C all data were reported as means for one year for subject variety and the standard variety with standard deviation. The varieties are randomly planted in a 4.5 acre observation nursery which is located within a larger 18 acre field. Besides the observation nursery, this field consists of a research seed increase nursery and an IP seed inventory nursery. The location of each of these individual nurseries is rotated each year to a different location within the 18 acre field. Therefore subject inbreds are not planted adjacent to comparative or standard varieties and may be located in different areas of the larger field each year, therefore being influenced by spatial differences within the field. Growing conditions within the field are not uniform as there are some slight topographical variations such as lower areas which may accumulate and retain water or higher areas which are usually drier. The field is tiled and therefore a variety maybe planted close to a tile line while a comparative variety maybe planted further away and in a low spot within the field. Temporal varieties can exist as weather conditions from year to year can vary as well as planting dates can vary from year to year based on weather conditions. Weather conditions each year can vary the maturity rate of the varieties due to either favorable or unfavorable growing conditions.

Trait variability is not observed for each variety within its own test plot-plants are usually uniform and data are collected on the "most" representative plants- variability occurs due to spatial location of the test plot for that variety from year to year and to the temporal variation of weather conditions from year to year during the two years data are collected.

Waterman Research Station
Monthly Weather Data
2008-2009

Date	Average Precip. (mm)	Ave. Monthly Temp- Max. (F°)	Ave. Monthly Temp- Min (F°)	Ave. Monthly Rel. Humid.- Max (%)	Ave. Monthly Rel. Humid.- Min (%)
April 2008	3.4	59.3	38.6	88.6	47.3
May 2008	3.7	67.2	43.1	86.9	39.7
June 2008	3.5	80.3	59.3	90.1	45.8
July 2008	4.2	82.4	61.0	91.4	49.4
August 2008	1.7	80.6	58.1	92.3	49.2
September 2008	7.3	75.1	53.4	94.4	54.1
April 2009	3.3	57.7	35.4	87.2	44.4
May 2009	3.4	70.4	48.1	86.8	42.6
June 2009	41.1	78.8	58.0	48.8	89.6
July 2009	2.1	76.2	56.8	92.8	52.1
August 2009	1.7	80.6	60.3	93.9	53.8

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) Monsanto Technology LLC	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME CV084705
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) Timothy R. Kain 8350 Minnegan Road Waterman, IL 60556 USA	5. TELEPHONE (Include area code) 815-758-9281	6. FAX (Include area code) 815-758-3117
	7. PVPO NUMBER 201200080	

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain. ☒ YES ☐ NO9. Is the applicant a U.S. national or a U.S. based entity? If no, give name of country. ☒ YES ☐ NO10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☐ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

Corn Variety CV084705 was originated and developed by a breeder employed by Monsanto Technology LLC. By agreement between Monsanto Technology LLC and the breeder, all rights to any invention, discovery, or development are assigned to Monsanto Technology LLC. No rights to such invention, discovery, or development are retained by the breeder.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT F
DECLARATION REGARDING DEPOSIT

NAME OF OWNER (S) Monsanto Technology LLC	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) 8350 Minnegan Road Waterman, IL 60556 USA	TEMPORARY OR EXPERIMENTAL DESIGNATION VARIETY NAME CV084705
NAME OF OWNER REPRESENTATIVE (S) Timothy R. Kain	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) 8350 Minnegan Road Waterman, IL 60556 USA	FOR OFFICIAL USE ONLY PVPO NUMBER 201200080

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.


Signature


Date